

WHAT IS CLAIMED IS:

1. An indexing technique for associating a plurality of keys with respective predetermined records, each of said keys comprising a data string of one or more digits with a plurality of constituent elements each taking one of said digits, said indexing technique comprising plural levels, each of which represents one of said digits and having an instruction for each constituent element of said data strings at said represented digit, wherein said instruction includes one of : i) moving on to check a next level without specifying a record; ii) specifying one or more records and also moving on to check a next level; iii) specifying one or more records and not moving on to check a next level; iv) not specifying a record and not moving on to check a next level.
2. The indexing technique of claim 1 wherein each of said keys represents a group of telephone numbers.
3. The indexing technique of claim 2 wherein each of said keys is a specified portion of each telephone number of said group.
4. The indexing technique of claim 3 wherein said specified portion is a starting portion of said each telephone number of said group.
5. The indexing technique of claim 4 wherein said starting portion comprises one or more digits.
6. The indexing technique of claim 2 wherein said records are call processing instructions.
7. The indexing technique of claim 6 wherein said call processing instructions are routing instructions.

8. The indexing technique of claim 1 wherein said constituent elements are alphanumeric characters.
9. The indexing technique of claim 8 wherein each of said keys represents a group of data entries of said database.
10. The indexing technique of claim 9 wherein each of said records is a destination assigned to said group represented by said each key.
11. The indexing technique of claim 1 wherein a sequence of said plural levels corresponds to a sequence of said digits in said data strings.
12. The indexing technique of claim 11 wherein said sequence of the digits is a natural order of the digits in the data string.
13. The indexing technique of claim 12 wherein a first level represents a first digit, a second level represents a second digit, a third level represents a third digit, and so forth.
14. The indexing technique of claim 11 wherein said sequence of the digits is determined by a specified priority of each digit in the data string.
15. The indexing technique of claim 14 wherein a first level represents a digit of a highest priority, a second level represents a digit of a secondly highest priority, a third level represents a digit of a thirdly highest priority, and so forth.
16. A method of looking up records for a data string query in a database indexed according to the indexing technique of claim 1, said data string query comprising a string of constituent elements each taking one digit in the string, said method comprising the steps of:
 - i) starting sequentially from a first level of said indexing technique,

checking for an instruction for each constituent element of said data string at each digit represented by each level and moving on to check a next level until said instruction found at a lastly checked level does not comprise an instruction of moving on to check a next level; and

ii) if said instruction found at said lastly checked level specifies one or more records, returning said specified records to said data string query, otherwise backing up one level at a time until an instruction of specifying one or more records is found, and returning said specified records to said data string query.

17. The method of claim 16 wherein said data string query is a telephone number.
18. The method of claim 17 wherein said records are call processing instructions.
19. The method of claim 18 wherein said call processing instructions are routing instructions to route a call associated with said telephone number.
20. The method of claim 19 wherein said levels are checked in a sequence corresponding to a sequence of said digits in said data string query.
21. The method of claim 20 wherein said sequence of the digits is a natural order of the digits in the data string query.
22. The method of claim 20 wherein said sequence of the digits is determined by a specified priority of each digit in the data string query.
23. The method of claim 16 wherein said constituent elements of the data string query are alphanumeric characters.
24. The method of claim 16 implemented as a recursive algorithm computer program.
25. A method of looking up records for a data string query in a database indexed

said data string query comprising a string of constituent elements each taking one digit in the string, said method comprising the steps of:

- ii) starting sequentially from a first level of a multilevel data structure, checking for an instruction for each constituent element of said data string at each digit represented by each level and moving on to check a next level until said instruction found at a lastly checked level does not comprise an instruction of moving on to check a next level; and
- iii) if said instruction found at said lastly checked level specifies one or more records, returning said specified records to said data string query, otherwise backing up one level at a time until a level with records to be returned is found; and
- iv) returning all routing records encountered in all levels in either the order encountered or in reverse order.

26. The method of claim 25 implemented as a recursive algorithm.